

- C2
B2
C2
- 4 • depositing on the fibrous medium between one and five grams per square
 - 5 meter (1 and 5 g/m²) of a composition based on specific pigment chosen
 - 6 from the group consisting of silica and precipitated calcium carbonate;
 - 7 • drying the fibrous medium which has been deposited;
 - 8 • coating the covered fibrous medium with at least one conventional
 - 9 surface coat intended to be printing by gravure or flexographic printing,
 - 10 the composition of which not containing silica,
 - 11 • drying the paper or the board created by said drying and coating steps; and
 - 12 • calendering the paper or board obtained.

REMARKS

The above-captioned patent application has been carefully reviewed in light of the final Official Action to which this Amendment is responsive.

Claims 1-8 are pending. Applicants' have amended Claims 1 and 4 to better clarify and to distinctly describe that which is regarded as the invention. No new matter has been added.

The Examiner has rejected Claims 1 and 3-7 as being unpatentable over Suzuki et al. (U.S. Patent No. 4,298,652) under 35 USC § 103. Applicants' respectfully traverse the rejection.

In order to establish a "*prima facie*" obviousness rejection, the cited references must contain all of the claimed components of the invention. Moreover, there must be a motivation in the prior art as a whole to combine the references in the manner noted by the Examiner.

Claim 1 specifies that "the composition of the inner coat of the paper or board includes at least one specific pigment chosen from the group consisting of silica, precipitated calcium carbonate, and calcined kaolin." Applicants' have now deleted the reference to calcined kaolin leaving an inner coat in which all the pigments are chosen among silica and/or precipitated calcium carbonate (PCC).

Presently, three embodiments of an inner coat are depicted in the application. In a first embodiment, all of the pigments of the inner coat consist of silica (Example 1, page 11, Example 2, page 14, Example 3, Composition A). In a second embodiment (Example 3,

Composition D), all of the pigments consist of precipitated calcium carbonate. Finally, composition B, described on page 18, includes as pigments, 50 parts of PCC and 50 parts of silica.

The Examiner has asserted that the use of calcined kaolin and PCC is well known in the field of coated paper.

Suzuki et al. describes a paper having a topcoat composition which is typically intended to be printed by gravure or flexographic printing. As described, the paper is coated with a two coating composition (A or B) which always contain as pigments, natural ground calcium carbonate with a specific surface area. As explained previously, the presence of natural ground calcium carbonate in the topcoat contributes to obtain a better porosity.

The Examiner cites column 7, lines 25-35 of Suzuki et al. in which it is indicated that the base paper is single coated or multiple coated. Note that all examples concern some embodiments where the paper is always single coated with a composition of ground calcium carbonate and kaolin.

Surprisingly, the Examiner has not considered the paragraph at column 5, lines 30-40 which states that the natural calcium carbonate can be mixed with other pigments such as kaolin, clay, and precipitated calcium carbonate.

The invention, however, as now claimed specifically indicates that the pigments used in the inner coat consist exclusively of silica, PCC or a mixture thereof. PCC is never mixed with ground calcium carbonate in the inner coat.

is not
mentioned
in
claim
new states
this

Therefore, Suzuki et al. does not render obvious the use of an inner coat contain only silica and/or precipitated calcium carbonate (PCC) in order to improve the surface appearance of the topcoat intended to be printed by a gravure or flexographic printing.

Critical to the Examiner's reasoning is his belief that the use of PCC in the inner coat is analogous to ground calcium carbonate. Applicants' wholly disagree with this opinion and have prepared an example to prove that these materials are not analogous for purposes of this invention.

For purposes of this example, three kinds of papers have been prepared as listed in the attached table marked "Exhibit A" in accordance with the invention. The first paper consists of a monolayer having the components as listed. The second paper consists of a bi-layer including an inner layer which includes ground calcium carbonate while the third paper is

nearly identical to that of the second paper with the exception that precipitate calcium carbonate (PCC) is used in the inner coat in place of ground calcium carbonate. As shown in the attached Exhibit A and using a heliotest, the printability of the third paper is more than twice that of either the first and/or second papers over two different formulations for the mono/top layers, used for each of the three papers. Clearly, the use of PCC is therefore ~~not~~ greatly preferred over ground calcium carbonate and is not one of mere substitution.

Since the use of PCC is not one of mere substitution over the use of ground calcium carbonate, as described by Suzuki et al., there can be no *prima facie* case of obviousness. Reconsideration is respectfully requested as to Claim 1. The same reasons apply for dependent Claims 3-7.

The Examiner has also rejected Claims 2 and 8 under 35 USC § 103(a) as being unpatentable over Suzuki et al. in view of Li (U.S. Patent No. 6,183,144). Applicants' respectfully traverse this rejection.

int use The Li patent does not refer to gravure or flexographic printing, but instead relates to ~~an~~ inkjet printing process. The inkjet process consists of a jet of ink which is applied directly on the surface of the paper. As such, there is no contact problem between the ink and the paper as in the present invention. As previously discussed, see col. 1, line 7 of Li, the problem to be solved in inkjet printing is that of resolution. Generally, the topcoat of paper that is printed by an inkjet process contains some silica-based product. In Li, this silica-based product consists of silica oxyde (col. 14, line 31) which is introduced in form of discrete non film-forming inorganic film particles. In other words, silica alone is not referenced.

Looking at each reference as a whole, a person of sufficient skill would not have combined Suzuki et al. and Li because the problems to be solved are not the same; that is, the improvement of the contact between ink and layer on the one hand (Suzuki) and resolution of the inkjet process (Li) on the other hand. In addition, even if these references were combinable, this combination does not teach silica alone but rather silica oxyde. For these reasons, it is respectfully requested that this prior art rejection be withdrawn. Reconsideration is respectfully requested. *int use*

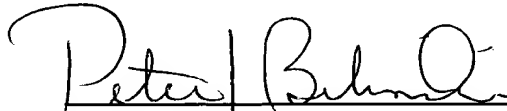
In summary, it is believed the above-captioned application is now in an allowable condition and such allowance is earnestly solicited.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-0289.


Respectfully submitted,

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"VERSION WITH MARKINGS TO SHOW CHANGES MADE."

In the Claims:

Claims 1 and 4 have been amended as follows:

1. (Twice Amended) At least one of a paper and a board consisting of a fibrous medium coated with at least one conventional surface coat intended to be printed by gravure or flexographic printing, and including, between the fibrous medium and the conventional surface coat, an inner coat of a composition based on specific pigments, said inner coat being deposited in an amount from one to five grams per square meter (1 to 5 g/m²),

wherein:

- the composition of the conventional surface coat does not contain silica;
- and the composition of the inner coat includes at least one specific pigment chosen from the group consisting of silica[,] and precipitated calcium carbonate (PCC) [and calcined kaolin].

4. (Twice Amended) A process for the manufacture of a paper or of a board, intended to be printed by gravure or flexographic printing, which consists of the following steps:

- producing a fibrous medium from a paper suspension;
- depositing on the fibrous medium between one and five grams per square meter (1 and 5 g/m²) of a composition based on specific pigment chosen from the group consisting of silica[,] and precipitated calcium carbonate [and calcined kaolin];
- drying the fibrous medium which has been deposited;
- coating the covered fibrous medium with at least one conventional surface coat intended to be printing by gravure or flexographic printing, the composition of which not containing silica,
- drying the paper or the board created by said drying and coating steps; and
- calendering the paper or board obtained.

Exhibit D

	INNER LAYER		INNER LAYER	
	CaCo ₃ 100 Parts Latex 12 Parts	CaCo ₃ précipité 100 Parts Latex 12 Parts		
Grammage g/m ²	47	47	51	51
	16	9	21	17
Printability Héliotest mm				